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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/446,005	12/14/1999	ESTILL THONE HALL, JR.	RCA88702	1670

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EXAMINER

AN, SHAWN S

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/446,005**

Applicant(s)  
**Hall, Jr. et al.**

Examiner  
**Shawn An**

Art Unit  
**2613**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Dec 14, 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Dec 14, 1999 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3 6) ☐ Other:

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## DETAILED ACTION

### *Information Disclosure Statement*

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8, 10-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wenyon (5,796,499) in view of Takano (JP 8-292498).

**Regarding claims 1 and 11,** Wenyon discloses a projection TV, comprising:

an optical system comprising at least three image projectors (Fig. 3B, 40rgb) for projecting images of different colors onto a projection screen (10), and a reflector (60) in optical communication with the image projectors and the screen so that one of the projectors has a first optical path in an orthogonal orientation (Fig. 2C, 0 degree) with the screen (100), and at least two of the projectors have optical paths converging toward the

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first optical path in a non orthogonal orientation (+ or - 10 degree) defining angle of incidence; and

the projection screen comprising a three dimensional hologram (Fig. 3A,100) representing a three dimensional diffraction array on a substrate (30), wherein the screen receives images from the projectors on a first side and displays the images on a second side (20) with controlled light dispersion of all the displayed images.

Wenyon fails to disclose the reflector being a holographic reflector.

However, Takano teaches a conventionally well known holographic reflector (Fig. 1, 1) for reflecting the incident light in the direction of non-regular reflection.

Therefore, it would have been considered quite obvious to a person of ordinary skill in the relevant art employing a projection TV as taught by Wenyon to modify the reflector to be holographic such as Takano's holographic reflector in order to correct optical defects such as chromatic aberrations induced by the projection screen, and also to reduce the depth of the projection TV.

**Regarding claims 2 and 12,** Wenyon discloses lens adapted to focus the respective images (col. 9, lines 18-20).

**Regarding claims 3 and 13,** it is well known in the art for a typical lens to comprise a polymer material.

**Regarding claims 5-8 and 15-18,** since Takano discloses holographic reflector, it would have been obvious to modify the reflector so as to possess well known optical properties of concave mirror, parabolic/spherical lens, and/or panchromatic.

**Regarding claims 4 and 14,** it is well known in the art (old art) for a conventional CRT tubes to not include a CRT optical lens such that exit pupils substantially lack magnification and focusing properties (see Albright 2,672,502).

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**Regarding claims 10 and 20**, Wenyon discloses a wide range of Horizontal, Vertical viewing angles, gain, and color shift (Brief Summary; Figs. 5A-6B).

Therefore, it is considered nothing more than simple design choices such that:  
Horizontal viewing angle:  $38 \pm 3$  degree;  
Vertical viewing angle:  $10 \pm 1$  degree;  
Screen gain:  $\geq 8$ ; and  
Color Shift:  $\leq 3$  to meet certain performance (also refer to Watanabe (5,889,613)).

4. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wenyon and Takano as applied to claims 1 and 11 above, respectively, and further in view of Watanabe (5,889,613).

**Regarding claims 9 and 19**, the combination of Wenyon and Takano fails to disclose the screen having a color shift  $\leq \sim 2$  for all the angles of incidence in a first subrange of angle of incidence greater than 0 degree and less than equal to  $\sim 10$  degree; and the color shift of the screen is less than or equal to  $\sim 5$  for all the angle of incidence in a second subrange of angles of incidence greater than  $\sim 10$  degree and less than or equal to  $\sim 30$  degree.

However, Watanabe teaches a graph (Fig. 10) having a color shift  $\leq \sim 2$  for all the angles of incidence in a first subrange of angle of incidence greater than 0 degree and less than equal to  $\sim 10$  degree; and the color shift of the screen is less than or equal to  $\sim 5$  for all the angle of incidence in a second subrange of angles of incidence greater than  $\sim 10$  degree and less than or equal to  $\sim 30$  degree.

Therefore, it would have been considered quite obvious to a person of ordinary skill in the relevant art employing a projection TV as taught by Wenyon to design the screen having a range of desired color shift as taught by Watanabe such that the color shift  $\leq \sim 2$  for all the angles of incidence in a first subrange of angle of incidence greater than 0 degree and

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less than equal to ~ 10 degree, and the color shift of the screen is less than or equal to ~ 5 for all the angle of incidence in a second subrange of angles of incidence greater than ~ 10 degree and less than or equal to ~ 30 degree to improve the white uniformity of the colors over whole screen, and also to achieve a wider range of viewing area.

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.
- A) Baik (5,663,774), Three tube beam projection system and method.
  - B) Popovich (6,040,928), Holographic desktop monitor.
  - C) Albright (2,672,502), Color selective optical system.
  - D) Son et al (5,917,459), Holographic head up display.
  - E) Hall Jr. et al. (6,078, 351), Projection television with 3-D holographic screens.
  - F) Hall Jr. et al. (6,400, 417 B1), Projection television with 3-D holographic screens and centered blue CRT for balanced CRT drive.
  - G) Hall Jr. et al. (6,078, 351), Holographic Projection screen having a rear-facing fresnel lens.
6. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday-Friday.

SSA



SHAWN AN  
PATENT EXAMINER

November 3, 2002